

*California*

## MOSFET POWER AMPLIFIERS

**Installation Instructions / Owner's Manual**

**400MSX  
600MSX**



**PROFILE®**

## **I**NTRODUCTION

Congratulations on your purchase of a California state-of-the-art power amplifier. Your selection of a California car audio product indicates a true appreciation of fine musical reproduction. Whether adding to an existing system or including your California amplifier in a new system, you are certain to notice immediate performance benefits.

## **K**EEP YOUR SALES RECEIPT

Take this time to attach your sales receipt to the manual and put in a safe place. In case of any unforeseen reason this product may need warranty service, your receipt will be necessary to establish purchase date.

## **R**ECOMMENDATION

A power amplifier's performance is only as good as its installation. Proper installation will maximize the system's overall performance. It is recommended that you have our product installed by an authorized Profile retailer. However, if you decide to install it yourself, please carefully read through this manual and take your time to do a quality installation.

**IMPORTANT!** Before making any connections, disconnect the car's battery until the installation is completed to avoid possible damage to the electrical system.

## **WARNING!**

**Exposure to high power sound system can cause hearing loss or damage. Listening to your system at loud levels while driving, will impair your ability to hear traffic sounds and emergency vehicles. Use common sense when listening to your system.**

Serial # \_\_\_\_\_ Model # \_\_\_\_\_



## **S**AFETY PRECAUTIONS

### **Fuse amplifier's power wire at the battery.**

Be sure to fuse the power wire within 12" of the car's battery. This will protect the car's battery in case of a short circuit between the power amplifier and battery. THIS IS A MUST, the amplifier's built-in fuse will only protect the power amplifier not the car's battery!

### **Use high grade wire connectors.**

To ensure maximum power transfer and secure safe connections, it is recommended to use high grade connectors where needed.

### **Do not run any wires underneath vehicle.**

Exposed wires have a chance of being cut or damaged. It is best to run all wires through the vehicle under the carpet and/or side panels. This lends to a cleaner installation and less risk of damage.

### **Use caution when mounting amplifier.**

Remember there are many electrical wires, gas lines, vacuum lines, brake lines as well as a gas tank in the automobile. Make sure you know where they are when mounting the amplifier to avoid puncturing lines, shorting wires or drilling holes in the gas tank.

### **Run signal wires away from electrical wires.**

To avoid possibility of induced noise from the car's electrical system (i.e. popping noises or engine noise), run wires away from the car's electrical wiring.

### **Make all ground wires as short as possible and at the same point.**

In order to reduce the chance of ground loops (i.e. engine noise), make the grounding wire as short as possible to reduce the wire's resistance. Also, when using multiple components, make sure all units are grounded at the same point.

### **Avoid sharp edges when running the wires.**

To avoid the possibility of power, signal or speaker shorts, be careful not to allow the amplifiers wires to come in contact with sharp edges. Use a grommet to protect the wire when running through the fire wall.

## FEATURES AND BENEFITS

### DC Offset Protection

This circuit protects the output of the amplifier against DC voltage. If for some reason DC voltage is detected at the output stage, the amplifier will shut down protecting the speakers from direct current.

### Short Circuit Protection

The circuit protects the amplifier from damage due to a short found in the speakers or wiring. If one of the speakers or its wiring comes in contact with ground, the amplifier will shut down. To resume normal operation, correct the problem and turn the head unit off, then back on. The amplifier will reset and play again.

### Thermal Protection

To protect the amplifier circuitry against damage caused by prolonged exposure to high temperatures, a thermal protection circuit is activated if the amplifier reaches excessively high operating temperature. Once the thermal circuit is activated, the amplifier will shut down to cool off. The Amplifier will automatically turn back on once it cools down to a safe operating temperature.

### Protection Indicator

This red diagnostic L.E.D. indicates that the amplifier has gone into protection. Once on, the amplifier will have no output. To resume normal operation, turn head unit off and back on again. If the amplifier immediately goes back into protection, check for high temperature, short circuits or low impedance.

### Built-in Crossover

The amplifier is equipped with a built-in variable low pass crossovers. The crossover features a variable frequency selection (40Hz ~ 130Hz) for precise high or low pass filtering.

### Bass Boost

For added low frequency performance the amplifier is equipped with a variable 12 dB bass boost.



### **Power Fusing**

This protects the amplifier against short circuits and excessive current.

### **Remote Turn-on**

Automatically turns amplifier on when connected to the head unit's remote output. The amplifier will turn on and off with the head unit to save current consumption. This control also operates the reset circuit for the amplifier's protection. It must be connected with the head unit in order to reset protection circuits.

### **Gold Plated connections**

For positive contact, maximum power and signal transfer with minimal resistance.

### **Adjustable Input Sensitivity**

Allows you to fine-tune the level matching between your source and the power amplifier. The controls have been set at the factory to accept average output of most radios, however, fine tuning may be necessary to optimize signal to the amplifiers input stage.

### **High Level Input**

Allowing for integration with "Factory Sound Systems".

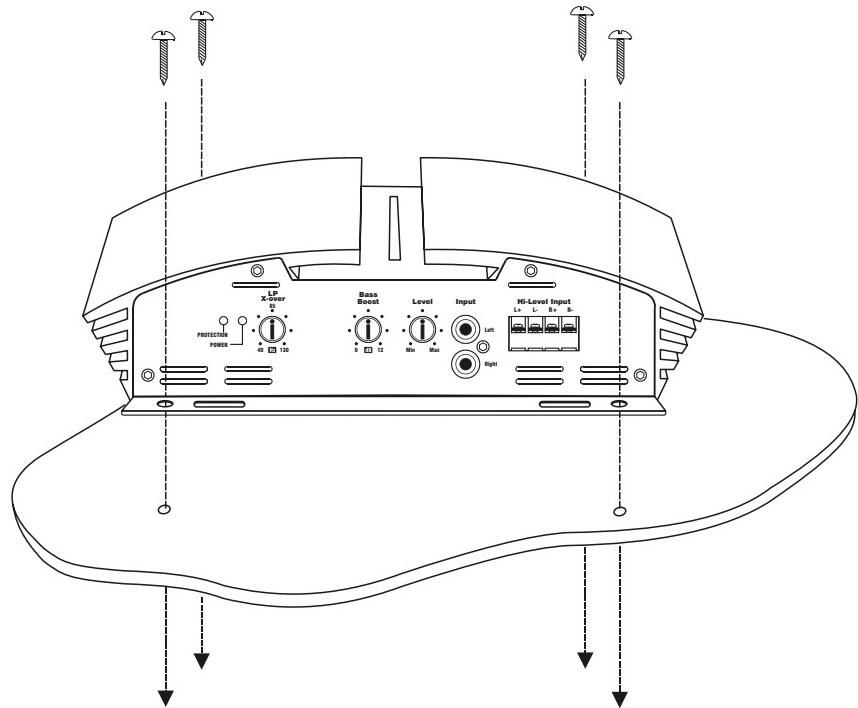
### **Stable To 2 Ohm**

Stability to 2 ohms allowing multiple speaker connections.

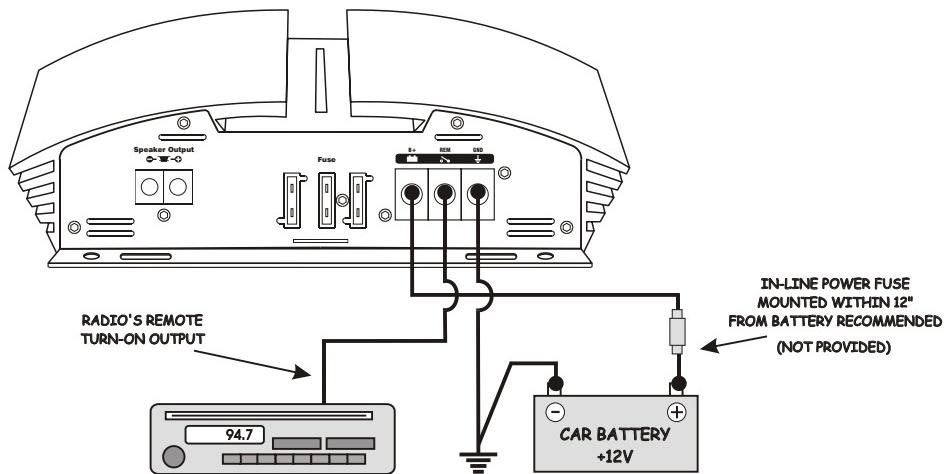
## MOUNTING LOCATION

Before you start the installation, it will be necessary to find a mounting location for the amplifier. Find a location in which the amplifier will receive adequate ventilation in order to dissipate the heat it develops during operation. Two popular mounting locations are in the trunk or under the seat.

Select the location in which you wish to mount the amplifier. **Use caution when mounting amplifier, there are many wires, gas lines, vacuum lines, brake lines as well as a gas tank in the automobile. Make sure you know where they are when mounting the amplifier to avoid puncturing lines, shorting wires or drilling holes in the gas tank.** Once you are ready, use a pencil to mark the mounting holes in the bottom panel. After you have marked the locations of the holes move amplifier out of the way and drill small starter holes to make the tapping screws easier to install. Use provided screws to tighten down the amplifier.



## POWER CONNECTIONS



**IMPORTANT!** Before making any connections, disconnect the car's battery until the installation is completed to avoid possible damage to the electrical system.

### Connect the amplifier to the car's battery.

At times, the amplifier will need to draw large levels of current that cannot be provided by any circuit in the car's fuse box. We recommend using a 4 to 8 gauge power wire for your connections depending on the amplifier and length of the wire. Strip one end of the wire to connect to the terminal on the amplifier marked B+. Loosen screw terminal and connect bare wire and tighten. Use caution to make sure no stray wire stands come in contact with surrounding terminals causing short circuits. Run the wire directly to the positive terminal of the car's battery. Make sure to use an in-line fuse within 12" of the car's battery to protect the electrical system and amplifier against short circuits and/or power surges.

### Connect the ground terminal of the amplifier to the car's chassis.

For the ground connection, use a 4-8 gauge wire (black) to connect to the terminal marked GND and then connect it to the car's chassis. Try to keep the length of the cable as short as possible, preferably less than 6". Also make sure that the point on the car where the connection is to be made is free of paint and dirt.

### Connect the remote terminal of the amplifier to a switchable +12V source.

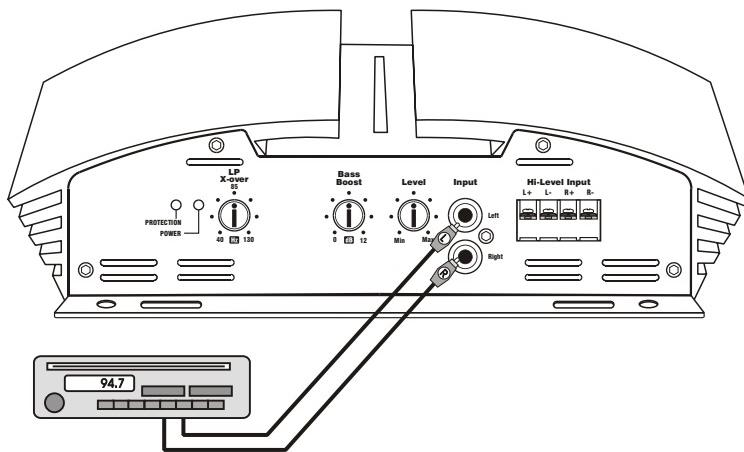
This connection allows the amplifier to be turned on and off with the power control of the radio. If the radio has a REMOTE output terminal, connect it to the amplifier's terminal marked REMOTE (using a 16 gauge wire or heavier). Now when the radio is turned on, the amplifier will automatically turn on.

## SIGNAL CONNECTIONS

**Connect the output of the head unit (AM/FM cassette player, CD, or DAT) to the RCA input terminals of the amplifier.**

To make these connections, we recommend high quality RCA cables, which are available at your local car audio retailer. Run signal wires away from electrical wires to avoid possibility of induced noise from the car's electrical system (i.e. popping noises or engine noise).

### TWO CHANNEL SIGNAL CONNECTIONS



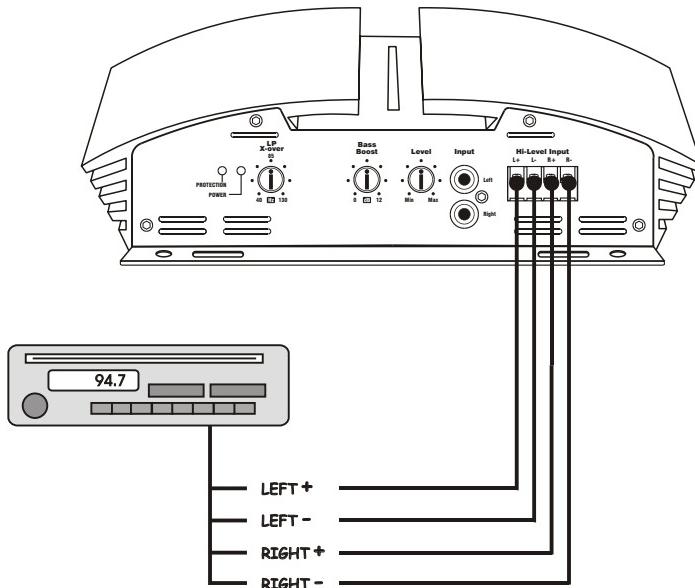
## HIGH LEVEL CONNECTIONS (OPTIONAL)

If a low level RCA signal source is not available, you may still wire the amplifier with high-level or speaker level outputs from your head unit. However, only speaker leads from a "floating ground" system may be used (see diagram below). Use the provided plug to make the following connections.

**Note:** The speaker leads from a "common ground" head unit systems should not be connected to the hi-level input terminals of the following connections.

**CAUTION!** Before making any connections determine the type of radio to avoid possible damage to amplifier and/or radio.

### TWO CHANNEL CONNECTIONS: FLOATING GROUND RADIO (MOST COMMON TYPE)

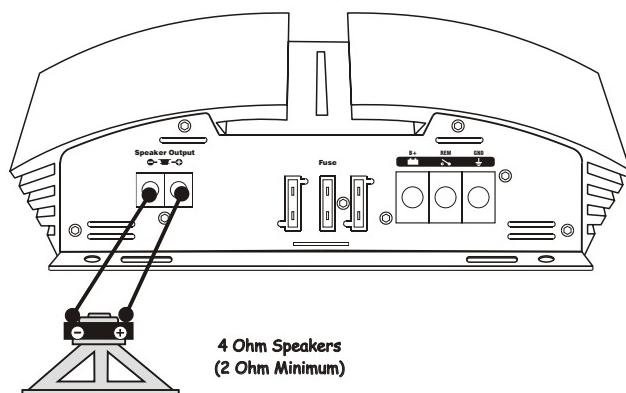


## SPEAKER CONNECTIONS

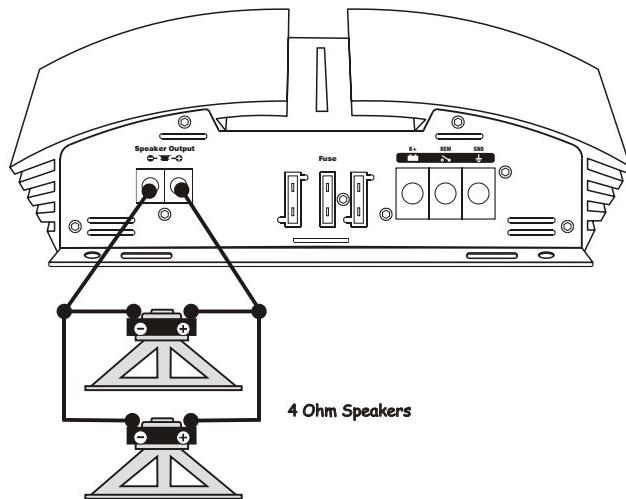
Make the speaker connections using speaker wire that is at least 10 gauge or heavier.

As with any audio component, proper phasing of the amplifier and speakers is essential for strong bass response. When connecting, make sure that positive (+) from the amplifier is connected to the positive (+) of the speaker, and the same for negative (-).

### SINGLE SPEAKER CONNECTION



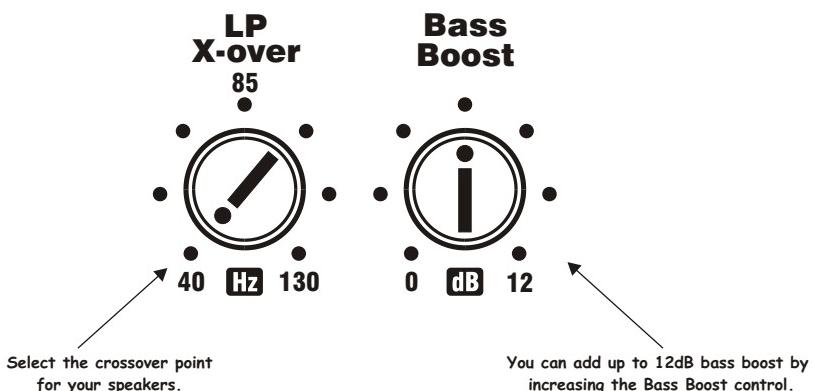
### TWO SPEAKER CONNECTION



## SETTING THE CROSSOVER AND BASS BOOST

### Select your crossover type and frequency.

The amplifier is equipped with a built-in variable low-pass crossover network allowing you to select the desired crossover point for your subwoofers. Please refer to speaker manufacturers recommended crossover point.



## FINE TUNE THE SYSTEM

### Fine tune the amplifier's input sensitivity.



Access to the gain sensitivity control for the California amplifier is located on the side panel. This gain control has been included to allow adjustment to properly match the output of the radio. This is one of the most misunderstood adjustments. By rotating the control in the clockwise direction, the amplifier's input will become more sensitive and the music will play louder. This is not a volume control and you will not get more power out of the amplifier in the maximum position! It may seem to deliver more output, but actually the system is only playing louder faster as you turn the volume control on the radio. Ideally, to properly level match the system the goal is to achieve maximum output from the amplifier without distortion at about 3/4 of the volume control.

To determine if the amplifier's gain is set properly, turn the system on and slowly increase the volume control. You should be able to use about 3/4 volume before the system gets loud but not distorting. It is very important when making these adjustments that you do not over drive the speakers (at point of distortion) this will cause permanent damage to the speakers. If you are unable to achieve 3/4 volume before distortion you will need to adjust gain control (in this case you would reduce the gain). The gain controls should be adjusted very slowly. It may help to have another person to assist you by adjusting the gain controls while you listen for distortion.

## TROUBLE SHOOTING THE SYSTEM

We have put together this trouble-shooting guide if you experience problems after installing the amplifier. Please keep in mind that the majority of problems incurred are caused by improper installation and not the equipment itself. In addition, there are many components in the system that could cause various signal problems such as inducted electrical noise and engine noise.

Before you can properly address the problem, you must first find the component that is causing the problem. This will take patience and a process of elimination.

### LOOK FOR....

### SOLUTION

#### No Output

Blown fuse	Replace
Bad RCA Cable(s)	Replace
+12V at power terminal	Check connection
+12V at remote terminal	Check connection
Grounding point clean and tight	Check for ground w/meter
Head Unit's fader not in center position	Set to center position

#### Low Output

Check level adjustments	Re-adjust
Bad RCA cable(s)	Replace
Improper level matching	Re-adjust

#### Engine Noise

Grounding points are clean and tight	Check for ground w/meter
Ground all components at same point	Ground at same point
Bad RCA cable(s)	Change for better ground
High Quality shielded RCA cables	Replace
Low Vehicle charging system and/or battery	Rejects inducted noise
	Fix and/or replace

#### Protection L.E.D. Illuminated

Speaker short	Check speaker connection for short circuit
Speaker grounding out	Make sure speaker wires do not touch chassis ground
Impedance too low	Check speaker impedance (Min 2 ohm Stereo, 4 Mono)
Overheating	Check mounting location for Adequate air Circulation Speaker impedance too low



## SPECIFICATIONS

### 400MSX

Max Power @ 4 Ohm	1 x 400W	1 x 600W
RMS Power @ 4 Ohm	1 x 200W	1 x 300W
Max Power @ 2 Ohm	1 x 600W	1 x 850W
RMS Power @ 2 Ohm	1 x 300W	1 x 410W
THD @ RMS Power	<0.07%	<0.07%
Frequency Response	10Hz ~ 94Hz (at-1dB)	10Hz ~ 94Hz (at-1dB)
Signal To Noise	>105dB	>105dB
RCA Input Sensitivity	200mV ~ 8V	200mV ~ 8V
RCA Input Impedance	16K Ohms	16K Ohms
High Level Input Impedance	100 Ohms	100 Ohms
Load Impedance	2 ~ 8 Ohms	2 ~ 8 Ohms
Crossover Type (12dB/Octave)	Low Pass	Low Pass
Crossover Frequency (Variable)	40Hz ~ 130Hz (at-3dB)	40Hz ~ 130Hz (at-3dB)
Bass Boost @ 45Hz (Variable)	0dB ~ 12dB	0dB ~ 12dB
Damping Factor	250	260
Power Terminal Size	4 Gauge	4 Gauge
Speaker Terminal Size	6 Gauge	6 Gauge
Fuse Value (ATC/ATO Type)	2 x 20A	3 x 20A
Size (H x D x W)	2 1/4" x 9 3/4" x 11 3/4"	2 1/4" x 9 3/4" x 16 1/8"

### 600MSX

Due to continuing product improvements, specification to change without notice.

## **PROFILE® LIMITED WARRANTY**

Profile Consumer Electronics, Inc. warrants this product to be free from defects in material and workmanship for a period of **One (1) Year** from the date of sale to the original consumer purchaser. If this product is proven to be defective within this one year period, Profile will repair it when said product is returned, with a copy of the dated sales receipt, freight prepaid to Profile.

This warranty is valid only in the United States. This warranty does not cover any expense incurred in the removal and/or re-installation of this product. This warranty does not cover any Profile product damaged by accident, misuse, abuse, improper line voltage, fire, water, lightning, or other acts of God. This warranty is void if any parts and/or service is/are furnished by anyone other than Profile. This warranty is void if the factory applied serial number is altered or removed from the product.

This warranty does not cover cartons, cases, batteries, broken or marred cabinets, magnetic tapes, or any other accessories used in connection with this product or consequential damages due to a defect in the product.

Any implied warranties, including fitness for use and merchantability, are limited in duration to the period of the express warranty set forth above. No person is authorized to assume for Profile any other liability in connection with the sale of the product. Profile expressly disclaims liability for incidental and consequential damages that might be caused by this product. The remedies provided under this warranty are exclusive and lieu of all others.

This warranty gives you specific legal rights. You may have other rights which vary from state to state or province to province. Some states or provinces do not allow limitation on how long warranties last, so the above may not apply to you. Additionally, some states/provinces do not allow the exclusion or limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

\* In the space below, record the model number that is located on the back of the unit along with the purchase date and location.

Model Number \_\_\_\_\_

Purchase Date \_\_\_\_\_ Where Purchased \_\_\_\_\_

**RETAIN YOUR SALES RECEIPT ALONG WITH THIS CARD. IT IS YOUR ONLY VALID DOCUMENT TO RECEIVE WARRANTY SERVICE.**

## **PROFILE® WARRANTY REPAIR POLICY**

In the unlikely event of product failure, the following procedures should be followed

- 1) The unit must be under the 1-year warranty period.
- 2) The unit must have no physical damage.
- 3) A copy of the original proof of purchase must be sent with the unit.
- 4) Include a brief description of the problem or failure with the unit.
- 5) Include the return street address and daytime telephone number.
- 6) Allow 2~3 weeks for repair (this period includes shipping time).

Send unit to :                   **PROFILE CONSUMER ELECTRONICS, INC.**  
**15060 SHOEMAKER AVE**  
**SANTA FE SPRINGS, CA 90670**  
**TEL: (562)404-9393**

Note:                   All units failing to meet the above requirements will be subject to a charge and or may not be repaired.



By **PROFILE**<sup>®</sup>

PROFILE CONSUMER ELECTRONICS, INC.  
15060 SHOEMAKER AVE  
SANTA FE SPRINGS, CA 90670  
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